

512-431

THAT WHICH IS CLAIMED:

5 1. A deinking composition comprising one or more surfactants, the surfactants including at least 50% by weight based on the total weight of surfactants of non-ionic, C16 to C25 aliphatic, monohydric alcohol alkoxylates having 14 to 40 moles of ethylene oxide per mole of alcohol and 0 to 10 moles of propylene oxide per mole of alcohol.

10 2. The composition according to Claim 1, wherein said surfactants include at least about 70% by weight based on the total weight of surfactants of non-ionic, C16 to C25 aliphatic, monohydric alcohol alkoxylates having 14 to 40 moles of ethylene oxide per mole of alcohol and 0 to 10 moles of propylene oxide per mole of alcohol.

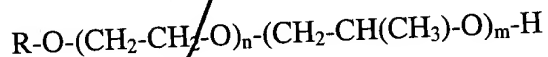
15 3. The composition according to Claim 1, wherein said surfactants include at least about 80% by weight based on the total weight of surfactants of non-ionic, C16 to C25 aliphatic, monohydric alcohol alkoxylates having 14 to 40 moles of ethylene oxide per mole of alcohol and 0 to 10 moles of propylene oxide per mole of alcohol.

20 4. The composition according to Claim 1, wherein said surfactants consist essentially of non-ionic, C16 to C25 aliphatic, monohydric alcohol alkoxylates having 14 to 40 moles of ethylene oxide per mole of alcohol and 0 to 10 moles of propylene oxide per mole of alcohol.

25 5. The composition according to Claim 1, wherein said alkoxylates are C16 to C18 alkoxylates.

6. The composition according to Claim 1, wherein said alkoxylates are saturated.

7. The composition according to Claim 1, wherein said alkoxyates have the formula:



wherein R is a straight chain or branched chain C16-C18 alkyl group, n is from 14 to 40 and m is from 0 to 10.

8. The composition according to Claim 6, wherein R is a straight chained C16-C25 group.

9. The composition according to Claim 8, wherein R is a C16-C18 alkyl group.

10. The composition according to Claim 1, wherein said alkoxyates are based on primary or secondary alcohols.

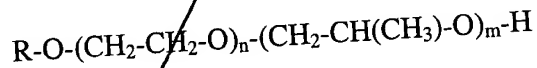
11. The composition according to Claim 1, wherein the average number of ethylene oxide groups per alkoxyate molecule is from about 16 to about 30.

12. The composition according to Claim 1, wherein the average number of propylene oxide groups per alkoxyate molecule is from 0 to about 6.

13. The composition according to Claim 1, further comprising from 0 to about 25% by weight of one or more fatty acids based on the total weight of surfactants.

14. The composition according to Claim 13, wherein said one or more fatty acids are selected from the group consisting of lauric acid, oleic acid, stearic acid, tall oil fatty acid, tallow fatty acid, coconut fatty acid, and mixtures thereof.

15. A deinking composition consisting essentially of:  
one or more surfactants wherein at least 70% by weight based on the total weight  
of the surfactants have the formula:



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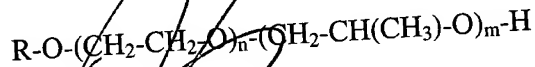
wherein R is a C16-C25 alkyl group, n is from 16 to 40 and m is from 0 to 10;  
from 0 to about 30% by weight of one or more C8-C20 fatty acids based on the  
total weight of surfactants; and  
water.

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16. A deinking composition consisting essentially of:  
one or more surfactants wherein at least 80% by weight based on the total weight  
of the surfactants have the formula:

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wherein R is a saturated, straight chain C16-C18 alkyl group, n is from 18 to 25 and m is  
from 0 to 6;  
from 0 to about 48% by weight of one or more C8-C20 fatty acids based on the  
total weight of surfactants; and  
water.

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17. A process for deinking wastepaper comprising the steps of contacting  
wastepaper pulp with a deinking composition comprising one or more surfactants, the  
surfactants including at least 50% by weight based on the total weight of surfactants of  
non-ionic, C16 to C25 aliphatic, monohydric alcohol alkoxylates having 14 to 40 moles  
of ethylene oxide per mole of alcohol and 0 to 10 moles of propylene oxide per mole of  
alcohol.

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18. The process according to Claim 17, wherein the contacting step comprises contacting the wastepaper pulp with a composition wherein the surfactants include at least about 70% by weight based on the total weight of surfactants of non-ionic, C16 to C25 aliphatic, monohydric alcohol alkoxylates having 14 to 40 moles of ethylene oxide per mole of alcohol and 0 to 10 moles of propylene oxide per mole of alcohol.

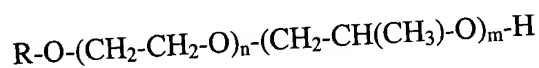
19. The process according to Claim 17, wherein the contacting step comprises contacting the wastepaper pulp with a composition wherein the surfactants include at least about 80% by weight based on the total weight of surfactants of non-ionic, C16 to C25 aliphatic, monohydric alcohol alkoxylates having 14 to 40 moles of ethylene oxide per mole of alcohol and 0 to 10 moles of propylene oxide per mole of alcohol.

20. The process according to Claim 17, wherein the contacting step comprises contacting the wastepaper pulp with a composition wherein the surfactants consist essentially of non-ionic, C16 to C25 aliphatic, monohydric alcohol alkoxylates having 14 to 40 moles of ethylene oxide per mole of alcohol and 0 to 10 moles of propylene oxide per mole of alcohol.

21. The process according to Claim 17, wherein the contacting step comprises contacting the wastewater pulp with a composition wherein said alkoxylates are C16-C18 alkoxylates.

22. The process according to Claim 17, wherein the contacting step comprises contacting the wastepaper pulp with a composition wherein said alkoxylates are saturated.

23. The process according to Claim 17, wherein the contacting step comprises contacting the wastepaper pulp with a composition wherein said alkoxylates have the formula:



wherein R is a straight chain or branched chain C16-C25 alkyl group, n is from 14 to 40 and m is from 0 to 10.

5           24. The process according to Claim 23, wherein the contacting step comprises contacting the wastepaper pulp with a composition wherein R is a straight chained, C16-C25 alkyl group.

10           25. The process according to Claim 24, wherein R the contacting step comprises contacting the wastepaper pulp with a composition is a C16-C18 alkyl group.

15           26. The process according to Claim 17, wherein the contacting step comprises contacting the wastepaper pulp with a composition wherein said alkoxyates are based on primary or secondary alcohols.

20           27. The process according to Claim 17, wherein the contacting step comprises contacting the wastepaper pulp with a composition wherein the average number of ethylene oxide groups per alkoxyate molecule is from about 16 to about 30.

25           28. The process according to Claim 17, wherein the contacting step comprises contacting the wastepaper pulp with a composition wherein the average number of propylene oxide groups per alkoxyate molecule is from 0 to about 6.

30           29. The process according to Claim 17, wherein the contacting step comprises contacting the wastepaper pulp with a composition further comprising from 0 to about 25% by weight of one or more fatty acids based on the total weight of surfactants.

35           30. The process according to Claim 29, wherein the contacting step comprises contacting the wastepaper pulp with a composition wherein said one or more fatty acids are selected from the group consisting of lauric acid, oleic acid, stearic acid, tall oil fatty acid, tallow fatty acid, coconut fatty acid, and mixtures thereof.

31. The process according to Claim 17, wherein the contacting step comprises contacting the wastepaper pulp with a composition wherein the alkoxyates are present in an amount from about 0.3% to about 0.7% by weight based on the oven-dry weight of the wastepaper.

32. The process according to Claim 17, wherein the contacting step comprises contacting the wastepaper pulp with the deinking composition at a pH of from greater than 7 to 10.

33. In a process for making recycled paper from wastepaper pulp that uses less sizing agents to produce paper with the same level of water repellency, the improvement comprising:

deinking the wastepaper pulp with a deinking composition that includes as a deinking surfactant one or more non-ionic, C16 to C18 aliphatic, monohydric alcohol alkoxyates having 14 to 40 moles of ethylene oxide per mole of alcohol and 0 to 10 moles of propylene oxide per mole of alcohol.